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Presentation

# Report of subgroup epidemiology and decision support systems

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## DEVELOPMENTS DECISION SUPPORT MODELS

In France, the DSS's Mildi-LIS and MilPV merged to form a new DSS for advisors and potato growers: Mileos. Furthermore, DSS's for organic production in France (Fredon) and Germany (Öko-SIMPHYT) were developed to help scheduling copper applications within the national and local regulations for application of copper.
The EuroBlight platform saw the birth of an application which allows comparison of the performance of core algorithms for potato late blight DSS for a range of years and locations (weather). EuroBlight now also provides a list of DSS's, contact persons etc. available in Europe.

Over the past period, the use of GIS and spatial interpolation of weather data for use in DSS systems was explored in Germany with good results. Spatial interpolation was used to increase the spatial resolution of weather data by "adding virtual weather stations" up to a density of 1 (virtual) station per $km^2$. Geographic data such as elevation, aspect and slope were used to improve the accuracy of interpolated virtual weather data. The high resolution weather data obtained were then used to improve the quality of disease management.
General knowledge gaps with respect to the current models were identified and included:

- Phenotypic data to update models are not available
- First infection: models assume inoculum comes from tubers. Include oospores? 8 – 10% tuber infection in conventional production, more in organic production. Situation seems to be stable and is more or less under control with the current systems.
- Tuber infection: Most systems only address foliar problems; specific advice to prevent tuber infection is not available.
- Cultivar resistance is treated differently by the different systems and used to e.g. adapt spray intervals and or fungicide dose rates. Reliable experimental data are difficult to obtain. On top of that there are concerns on the stability of resistance as related to the adaptive abilities of *P. infestans*.

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**EUROBLIGHT IN A GLOBAL CONTEXT**

Globally, the use of DSS's for potato late blight management is increasing with large areas of potato managed by VNIIFBlight in Russia. In China, china-blight (http://wwwchina-blight.net/) is providing information on potato late blight management, general weather based disease forecasts (adjusted MISP) and a simple DSS for farmer use (CIP derived Questionnaire).

Furthermore, the way EuroBlight operates, its pathogen and host databases, control strategies and the fungicide table has attracted global attention. Research groups in Asia and Latin America aim to start up "Asia Blight" and "Latin Blight", EuroBlight's spin off partners in Asia and Latin America.

**EU PESTICIDE PACKAGE AND DSS's**

The introduction of the EU pesticide package will bring about changes in European agriculture, with each member state implementing a national action plan and adoption of Integrated Pest Management (IPM).

DSS's can play an important role in optimization and justification of pesticide applications while keeping track of inputs at the same time. DSS's should thus be promoted as a tool enabling a responsible implementation of the EU directive while at the same time providing growers with the most up to date and effective control strategy. It was recommended to communicate this information to inform EU policy makers on the potential contribution of DSS's to implementation of the EU pesticide package.